

IN THE CLAIMS:

Please amend claims 1, 23 and 44, and cancel claims 12-14, 31-33, 40, 49-51, 63, 69, 75, 77, 79, 80, 86, 89, 97 and 99.

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A method for culling farm animals from a group of farm animals comprising the steps of:

i) voluntary culling, and

ii) involuntary culling,

wherein voluntary culling comprises selling of breeding stock and low producing animals, and involuntary culling comprises eliminating animals with infection or disease or as a result of death, and wherein decreasing an involuntary cull in farm animals is decreased by the steps of comprising:

- (a) penetrating a muscle tissue in the farm animals with a plurality of needle electrodes, wherein the plurality of needle electrodes are arranged in a spaced relationship;
- (b) introducing an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") into the muscle tissue between the plurality of needle electrodes, wherein the encoded GHRH has a sequence of SEQ ID NO.: 6 and is capable of binding to a GHRH receptor; and
- (c) applying a constant current electrical pulse to the plurality of needle electrodes, wherein the constant current electrical pulse is maintained under a threshold to allow a user to reduce cell heating and create less cell death;

wherein, the isolated nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the encoded GHRH molecule having a

sequence of SEQ ID NO.: 1; and a 3' untranslated region that are in an operatively positioned arrangement capable of expressing the encoded GHRH molecule under conditions that promote expression of the nucleotide sequence in the muscle tissue, ~~wherein the involuntary cull comprises infection, disease, morbidity, or mortality of the farm animals; and~~ wherein the farm animals comprises ruminant animals, food animals, or work animals.

2. (Previously presented) The method of claim 1, wherein the involuntary cull from mortality is decreased from about 20% in farm animals not having the isolated nucleic acid expression construct delivered into muscle cells to less than 15% in farm animals having the isolated nucleic acid expression construct delivered.

3. (Original) The method of claim 1, wherein the involuntary cull comprises mortality at birth of newborns of the farm animals.

4. (Original) The method of claim 1, wherein the involuntary cull comprises post-natal mortality of newborns of the farm animals.

5. - 6. (Canceled)

7. (Original) The method of claim 1, wherein the isolated nucleic acid expression construct is delivered in a single dose.

8 (Original) The method of claim 7, wherein the single dose comprises about a 2 mg quantity of nucleic acid expression construct.

9. (Previously presented) The method of claim 1, wherein the muscle cells of the farm animals comprise diploid cells.

10. (Canceled)

11. (Previously presented) The method of claim 1, wherein the isolated nucleic acid expression construct comprises SEQ ID No.: 11.

12-15. (Canceled)

16. (Previously presented) The method of claim 15, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.

17. (Previously presented) The method of claim 15, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.

18. (Original) The method of claim 1, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.

19. (Original) The method of claim 1, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biological activity when compared to the GHRH polypeptide.

20-21. (Canceled)

22. (Original) The method of claim 1, wherein the farm animals comprise dairy cows.

23. (Currently amended) A method for improving a body condition score ("BCS") in farm animals comprising:

i) evaluating body condition score of farm animals;

ii) administering an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone to said farm animals by the steps of:

- (a) penetrating a muscle tissue in the farm animals with a plurality of needle electrodes, wherein the plurality of needle electrodes are arranged in a spaced relationship;
- (b) introducing an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") into the muscle tissue between the plurality of needle electrodes, wherein the encoded GHRH has a sequence of SEQ ID NO.: 6 and is capable of binding to a GHRH receptor;
- (c) and applying a constant current electrical pulse to the plurality of needle electrodes, wherein the constant current electrical pulse is maintained under a threshold to allow one to reduce cell heating and create less cell death:

wherein, the isolated nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the encoded GHRH molecule has a sequence of SEQ ID NO.: 1; and a 3' untranslated region that are in an operatively positioned arrangement capable of expressing the encoded GHRH molecule under conditions that promote expression of the nucleotide sequence in the muscle tissue; and,

iii) re-evaluating body condition score of the farm animals days after elapse of time wherein the BCS is an aid used to evaluate an overall nutritional state of the farm animals; and wherein the farm animals comprises ruminant animals, food animals, or work animals.

24-25. (Canceled)

26. (Original) The method of claim 23, wherein the isolated nucleic acid expression construct is delivered in a single dose.

27. (Original) The method of claim 26, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

28. (Previously presented) The method of claim 23, wherein the muscle cells of the farm animals comprise diploid cells.

29. (Canceled)

30. (Previously presented) The method of claim 23, wherein the isolated nucleic acid expression construct comprises SEQ ID No.: 11.

31-34. (Canceled)

35. (Previously presented) The method of claim 34, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.

36. (Previously presented) The method of claim 34, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.

37. (Previously presented) The method of claim 23, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.

38. (Previously presented) The method of claim 23, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.

39-40. (Canceled)

41. (Previously presented) The method of claim 23, wherein the farm animals comprises a pig, sheep, goat or chicken.

42. (Previously presented) The method of claim 23, wherein the farm animals comprise bovine.

43. (Previously presented) The method of claim 42, wherein the farm animals comprise dairy cows.

44. (Currently amended) A method for increasing milk production in a dairy cow comprising:

i) determining milk production in a dairy cow;

ii) administering an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone to said farm animals by the steps of:

- (a) penetrating a muscle tissue in the dairy cow with a plurality of needle electrodes wherein the plurality of needle electrodes are arranged in a spaced relationship;
- (b) introducing a single dose of an isolated nucleic acid expression construct that encodes a growth-hormone-releasing-hormone ("GHRH") into the muscle tissue

- between the plurality of needle electrodes, wherein the encoded GHRH has a sequence of SEQ ID NO.: 6 and is capable of binding to a GHRH receptor; and
- (c) applying a constant current electrical pulse to the plurality of needle electrodes wherein the constant current electrical pulse is maintained under a threshold to allow one to reduce cell heating and create less cell death;

wherein, the isolated nucleic acid expression construct comprises a synthetic muscle specific promoter; a nucleotide sequence capable of expressing the encoded GHRH molecule has a sequence of SEQ ID NO.: 1; and a 3' untranslated region that are in an operatively positioned arrangement capable of expressing the encoded GHRH molecule under conditions that promote expression of the nucleotide sequence in the muscle tissue; and,
iii) determining milk production in the dairy cow at a different time point.

45. (Original) The method of claim 44, wherein the increase in milk production is increased from about 8% to about 18% in farm animals having the isolated nucleic acid expression construct delivered when compared to animals not having the isolated nucleic acid expression construct delivered.

46. (Canceled)

47. (Original) The method of claim 44, wherein the single dose comprises about a 2mg quantity of nucleic acid expression construct.

48. (Previously presented) The method of claim 44, wherein the isolated nucleic acid expression construct comprises SEQ ID No.: 11.

49-52. (Canceled)

53. (Previously presented) The method of claim 52, wherein the transfection-facilitating polypeptide comprises a charged polypeptide.
54. (Previously presented) The method of claim 52, wherein the transfection-facilitating polypeptide comprises poly-L-glutamate.
55. (Original) The method of claim 44, wherein the delivering into the cells of the farm animals the isolated nucleic acid expression construct initiates expression of the encoded GHRH or functional biological equivalent thereof.
56. (Original) The method of claim 44, wherein the encoded GHRH is a biologically active polypeptide; and the encoded functional biological equivalent of GHRH is a polypeptide that has been engineered to contain a distinct amino acid sequence while simultaneously having similar or improved biologically activity when compared to the GHRH polypeptide.
- 57-99. (Canceled)